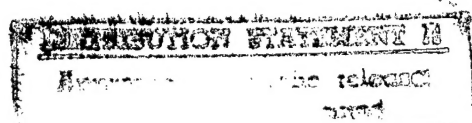


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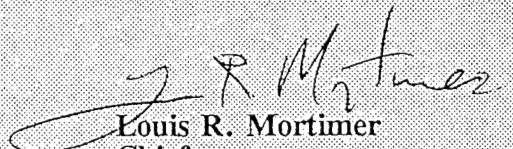
**Peter R. Blood
James Heitzman**

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PREFACE

This bibliography provides selective annotations of open-source material on two current issues:

- nuclear developments in South Asia, and
- tactics and organization of the Afghan resistance

The bibliography incorporates serials and monographs received in the previous month and is part of a continuing series on the above subjects.

Entries within each topic are arranged alphabetically by author or title. Call numbers for materials available in the Library of Congress are included to facilitate recovery of works cited.

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1. NUCLEAR DEVELOPMENTS IN SOUTH ASIA

GLOSSARY OF TERMS

AEMC	The Atomic Energy Minerals Center at Lahore is responsible for finding and recovering uranium ore, thereby filling a vital need stemming from boycotts of Pakistan by international nuclear fuel suppliers.
BARC	Bhabha Atomic Research Centre is located in north Bombay and is India's facility for research in and development of nuclear technology.
CHASHNUPP	Pakistan's Chashma Nuclear Power Plant, a projected 900-megawatt facility in Mianwali District, Punjab, was sanctioned in 1982 in order to create electrical power through light-water technology.
Cirus	A Candu-type Canadian-built plant located at BARC, Cirus was commissioned in 1960. India reprocessed spent fuel from Cirus to make the plutonium for its 1974 "peaceful nuclear explosion;" Cirus has a capacity of 40 megawatts.
Dhruva	One of the world's few high-flux reactors, Dhruva, which went critical in August 1985, is solely the product of Indian research and production, and therefore, falls completely outside IAEA safeguards. Dhruva shares facilities with Cirus, its neighbor in the BARC, has a 100-megawatt capacity, and can produce 30 kg of plutonium annually.
IAEA	International Atomic Energy Agency (United Nations)
Kalpakkam	This Tamil Nadu town is the site of the Indira Gandhi Atomic Research Center (formerly MAPP) and gives its name to a 40-megawatt fast-breeder reactor which went critical in August 1985 using plutonium-uranium carbide fuel.

KANUPP	Karachi Nuclear Power Plant, a 125-megawatt reactor, was supplied by Canada on a turnkey basis and became operational in 1972.
MAPP-1	Madras Atomic Power Project's first Candu-type 235-megawatt unit was commissioned in January 1984. The center is located at Kalpakkam, Tamil Nadu, and was produced completely by Indian research and technology; consequently, its units and the plutonium they produce fall outside IAEA inspection safeguards. MAPP units are intended to provide electricity for Madras. In October 1985, MAPP was renamed the Indira Gandhi Atomic Research Center, but new names for individual plants have not been made public.
MAPP-2	The second unit at Madras Atomic Power Project is also a Candu-type 235-megawatt plutonium and heavy-water reactor. MAPP-2 went critical in August 1985 and was commissioned in October of the same year.
NPT	The Nuclear Nonproliferation Treaty was ratified by the UN General Assembly in 1968. India and Pakistan contend that the NPT discriminates against nonnuclear states, but Pakistan has repeatedly offered to sign if India will do so simultaneously. In the UNGA, Islamabad voted in favor of the NPT.
PAEC	Pakistan Atomic Energy Commission
PINSTECH	Pakistan Institute of Nuclear Science Technology, the site of a US-supplied 5-megawatt "swimming pool"-type reactor installed in the 1960s
RAPP-I (RAPS-I)	The first Rajasthan Atomic Power Project (Station), located at Rawatbhata, has a Candu (Canadian deuterium-uranium) reactor with 220 megawatt gross capacity. It began operating in 1973, but it has been plagued with repeated equipment problems, including turbine blade failure and leaks in its south end-shield. It has operated for only a few months since September 1981.

RAPP-II
(RAPS-II)

The design of the second unit at Rawatbhata is identical to RAPP-I, but after India exploded an atomic device in 1974 Canada refused to complete the project, and Indian engineers finished the plant.

Tarapur

The Tarapur nuclear power plant, located near Bombay, was built by the United States. It has a capacity of 600 megawatts and can annually produce 50 to 80 kg of plutonium. Tarapur and its products come under IAEA inspection safeguards.

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Chellaney, Brahma. "An atomic mausoleum." Indian Express (New Delhi), 1 August 1987, p. 8.

It appears that the cracked end-shield of the RAPS-I unit is irreparable. Current procedures for shutting down the unit permanently involve encasing it in concrete. Alternative repair plans involving the use of a nuclear robot will not be feasible until the 1990s, and procedures for permanent shutdown being perfected in the U.S. and Europe may remain inaccessible to India while it refuses to sign the non-proliferation treaty. The end-shields at RAPS-II and MAPS-I (Madras) use end-shields similar to that in RAPS-I, and in the future they too could exhibit cracks resulting in premature shutdown. Meanwhile, Indian nuclear authorities have already started adding a decommissioning surcharge in the electricity rate of every power plant, amounting to 13 billion rupees during an average reactor lifespan of 25 years.

"Dhruva 'safe' even against bombing." Indian Express (New Delhi), 21 August 1987, p. 7.

Dr. P. K. Iyengar, director of the Bhabha Atomic Research Centre (BARC), speaks to the Indian Science Writers' Association on 19 August 1987. Among the points he makes are: (1) The Dhruva reactor is operating at 60 mw and will soon reach 100 mw; it is so safe that even bombing would not cause widespread radiation hazards; (2) By A.D. 2000 India will have 40 cubic meters of radioactive waste; (3) the leaking end-shield of RAPS-I is repaired and the plant is producing 90 mw of power; (4) the 235 mw design developed in India is the optimum size for developing countries.

Hussain, Mushahid. "Why Pakistan Needs a Nuclear Option." Washington Post (Washington), 29 July 1987, p. A23.

The article discusses three perceptions informing Pakistani policies on nuclear weapons: (1) India's nuclear policies demand a Pakistan response; (2) The U.S. uses a double standard in punishing Pakistan for its nuclear development but ignoring proliferation in India and Israel; (3)

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Pakistan detects arrogance and self-righteousness in a Western attitude assuming Western self-control and Islamic irrationality in the control of nuclear weapons. In the future the U.S. will have to cope with a nuclearized South Asia in which the threat of mutual destruction will deter both India and Pakistan from renewing full-scale warfare.

Joshi, J. V. "India's Nuclear Burial." South (London), August 1987, p. 43. HC59.69.S65

The solid storage surveillance facility (SSSF) near Tarapur atomic power station houses nuclear waste cannisters in steel tubes sealed by heavy steel plugs. The vault, designed for use for 25 years, is guarded constantly and is air conditioned. Its cost was \$200 million. Before storage here, waste is conditioned at a waste immobilisation plant (WIP) at Tarapur, stored for a year in polyethylene-lined ponds, and allowed to evaporate. The solids are then vitrified in a remote-controlled process behind lead shields before storage in cannisters for the SSSF.

Kumar, S. "Facts behind Soviet offer on nuclear reactors." Times of India (Bombay), 15 July 1987, p. 15.

The article discusses the history of Indo-Soviet discussions on transfer of Soviet nuclear power stations to India, beginning in 1979 and continuing annually from 1982 until 1987. The article stresses the many uncertainties remaining, but reveals that (1) Soviet financing would entail a 20-year loan at 2 1/2 percent interest, with a moratorium on repayment for the first three years; (2) Indian engineers do not yet fully understand the Soviet pressurized water reactor (PWR), which uses enriched uranium and light water in distinction to the natural uranium and heavy water used in Indian reactors. Despite political costs, India may go ahead with the project for financial reasons: the Indian department of atomic energy must try to reach a goal of 10,000 mw by A.D. 2000, but government resources alone may not finance enough reactors.

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"Pakistan not to allow inspection of N-plants." The Muslim
(Islamabad), 12 August 1987, p. 8.

In the wake of the arrest of Arshad Pervez, who was attempting to ship special steel from the U.S. for possible use in nuclear programs in Pakistan, the U.S. suggests that Pakistan place its uranium enrichment facilities under international safeguards. Pakistan refuses to allow international inspection of its plants unless India does the same. Pakistan also issues a warrant for the arrest of Pervez's "client" in Pakistan and promises to cooperate fully in the investigation of the incident.

"RAPP first unit set right." Hindu (Madras), 13 July 1987, p. 1.

The first unit of the Rajasthan Atomic Power Project (RAPP), down for five years because of a broken end-shield, has been re-commissioned. Initial output will be 30 mw, with an eventual goal of 100 mw. RAPP-2 is producing 5 million power units daily, slightly below its normal level.

Root, Vidya Nayak. "Shifting of thorium plant 'unwise'." Indian Express (New Delhi), 17 July 1987, p. 1.

A new thorium plant in Chatrapur, Orissa, will manufacture thorium compounds required for making gas mantles and for the fast breeder nuclear reactor in Kalpakkam. Its output is projected at 150 mt per year. It will be located at the Orissa Complex of the Indian Rare Earths (OSCOM), set up primarily to separate components of rare earths and to produce value-added ilmenite or synthetic rutile. The new thorium plant will employ around 117 persons. The move is bitterly opposed by workers in the present thorium plant in Trombay, who do not want to relocate and feel that (a) the move is motivated by political considerations; (b) the present plant could be upgraded; (c) cost overruns and construction delays will introduce chaos into the plant's operations.

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Sharma, Subash. "Paramanu bijali ke tis sal" ("Thirty Years of Nuclear Power"). Nava Bharat Times, 27-28 July 1987, p. 4 (in Hindi).

Part I, "The Long Journey of Reactors," describes the history of nuclear power generation since the 1950s and the work of the International Atomic Energy Agency (IAEA) to document and regulate nuclear power. Despite the initial high hopes, nuclear power has demonstrated an increasing range of problems: Although an 80% load factor is considered optimal, most plants produce at a lower rate which is further decreased if down time is factored in; unprofitability and obsolescence of older plants has progressively slowed down growth; since the Chernobyl accident there has been a big falloff in new construction. Fusion remains a technology of the future. The IAEA must still deal with the big safety questions: radioactivity and nuclear waste.

Part II, "India and the World Community," begins by describing the large role played by India in the IAEA from its early days, but the relative powerlessness of the IAEA in regulating national programs. India did not participate in the Non-Proliferation Treaty because of fear of China and Pakistan, despite pressure from the U.S. and U.S.S.R. India retained the nuclear option and tested a weapon in the 1960s when its atomic energy program outpaced China's, but by now India has fallen behind China while Pakistan has reached the nuclear threshold.

Atomic weapons development in the experience of France and Great Britain occupied a shrinking percentage of their defense budgets; thus, A-bombs have proven cheaper than tanks. It was foolish not to follow up on the Pokharan explosion in 1968, which was politically costly. Now the atomic weapons industry in India is undeveloped and expensive to renew. India should take steps to develop this industry and achieve atomic "security." The annual budget for India to develop an atomic weapons industry would be about two billion dollars.

"Tarapur Atomic Power Station Unit Sets Record." Foreign Broadcast Information Service--Near East and South Asia, 31 July 1987, p. R2

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An official press release in Bombay announces that Tarapur Unit II set a new record of 200 days of continuous operation, generating 750 million units of power with 98 percent capacity utilization.

2. TACTICS AND ORGANIZATION OF THE AFGHAN RESISTANCE

GLOSSARY OF TERMS

Commander	A resistance fighter who is recognized as a military leader in local or regional areas of conflict; some commanders are respected outside their own regions, but there is not yet a coordinated, nationwide, insurgent command in Afghanistan. The title commander is the only honorific or rank recognized by the resistance movement.
Dushmani	(singular: <u>dushman</u>) Soviet pejorative term for Afghan insurgents; it means "bandit" and originated during the 1930s Central Asia resistance.
DRA	The Democratic Republic of Afghanistan was established as the result of a coup led by Mohammad Nur Taraki and Hafizullah Amin in April 1978. Deteriorating internal security led to military intervention by the Soviet Union in December 1979 and Amin was killed by the invading troops. The Soviet invasion transformed armed resistance toward the modernistic but arbitrary reforms of Taraki and Amin into a war of national liberation.
KHAD	DRA intelligence service whose operations are entirely directed by its many Soviet KGB advisors. The acronym stands for Khedmat-Etala'at-e-Daulati (State Information Service). KHAD received ministerial rank in January 1986.
Mujahideen	(singular: <u>mujahid</u>) This Islamic term means "holy warrior," but it is most often used as a name for Afghanistan's resistance fighters, who consider their campaign a <u>jiha</u> d (holy war) to drive unbelievers from their country.
Spetznaz	Soviet special warfare troops under the GRU (Military Intelligence Directorate) of the Soviet Ministry of Defense. These highly mobile units are deployed throughout Afghanistan for operations which require more skill or loyalty than is commonly displayed by Soviet or DRA troops.

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"Afghan Leader Consolidates Grip on Power." Washington Post, 1 October 1987, p. A35.

Radio Kabul announced that DRA leader Najibullah was unanimously elected president of the Revolutionary Council, a post which also carries with it the national presidency. Under the new draft constitution, the presidency, previously only a ceremonial office, will have greatly expanded powers. Najibullah's election is considered by diplomatic observers to allow him to consolidate his position as the regime's strongman. As president he will have the authority to dissolve the national assembly and veto its laws, declare war and states of emergency, appoint the prime minister and top military and judicial officials, and command the armed forces.

Benningsen, Alexandre. "Winning the War for Afghanistan." Afghan News (Peshawar), Vol. 111, No. 18, 15 September 1987, p. 9.

The author maintains that the Soviet Union, because of its continuing war in Afghanistan, is in danger of importing the Islamic spirit of the Afghan jihad. Soviet Muslims, he says, are resentful of Russian domination, and are following the war with great interest. There is evidence, unreported in the world press, of increased solidarity between Central Asian Muslims and the Afghan resistance. The author relates what one Soviet Muslim told him, "the resistance of the Afghans is for us the first gleam of hope since the Russian conquest."

Gannon, Kathy. "Modern Samurai Wields 'Sword' in a Foreign War." Christian Science Monitor (Boston), 14 August 1987, p. 1.

Koshiro Tanaka, a Japanese businessman and karate expert, has adopted as his cause celebre, the mujahed struggle against the Soviet occupation of Afghanistan. Tanaka has made several trips into Afghanistan, fighting alongside guerrillas affiliated with the Jamiat Islami resistance organization. His participation in the Afghan jihad has been a source of embarrassment not only to the Soviets, who have twice claimed to have killed him, but also to his own

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government which has tried to dissuade him from his much publicized anti-Soviet crusade. Tanaka criticizes the Japanese government for failing to launch a military operation to drive the Soviets off the Kuril Islands, which Japan claims. Tanaka lectures frequently on the Afghan war and plans to publish a book on his exploits as a mujahid.

Karp, Aaron. "Blowpipes and Stingers in Afghanistan: One Year Later." Armed Forces Journal International (Washington, D.C.), Vol. 125, September 1987, pp. 36-40.

The author analyzes the impact of the British Blowpipe and American Stinger surface-to-air missile, first introduced to the resistance arsenal in 1986, on the war in Afghanistan. While he concedes that their use by the Afghan guerrillas has been surprisingly effective and has made the Soviet occupation more costly, the author strongly asserts that these new weapons will probably not change the course of the war and that the tally of Soviet helicopters and fixed-wing aircraft downed by Stingers and Blowpipes is exaggerated and does not take into consideration the high percentage of aircraft losses due to mechanical failure.

Ottaway, David B. "U.S. Widens Arms Shipments To Bolster Afghan Guerrillas." Washington Post, 21 September 1987, pp. A1, A7.

The US government, unconvinced that the Soviet Union is serious about withdrawing its troops from Afghanistan, decided to step up its pressure and supply the resistance with long-range mortars and mine-clearing equipment. This new equipment will enable the mujahideen to directly threaten Soviet and DRA air bases and garrisons.

Weintraub, Richard M. "Afghan Women Coming Out of Purdah." Telegraph (Calcutta), 15 July 1987, p. 7.

The author observes that women enrolled at Kabul University are some of the most avid supporters of the DRA. Many now

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talk about pursuing future careers not open to them before the regime's reforms. The author, however, believes that many of the career alternatives that are open to women are due to the war. Large numbers of men have fled the country, are in the military, or have become casualties. The Afghan war, he states, has become a crucible for change in the status of women.